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May 28, 2010

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: Red Line/Blue Line Connector
PROJECT MUNICIPALITY	: Boston
PROJECT WATERSHED	: Boston Harbor
EOEA NUMBER	: 14101
PROJECT PROPONENT	: Massachusetts Department of Transportation (MassDOT)
DATE NOTICED IN MONITOR	: April 7, 2010

As Secretary of Energy and Environmental Affairs, I hereby determine that the Draft Environmental Impact Report (DEIR) submitted on this project adequately and properly complies with the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and with its implementing regulations (301 CMR 11.00). However, I am declining to allow this DEIR to be considered the Final Environmental Impact Report (FEIR) (as permitted under 301 CMR 11.08(8)(b)(2)). The Proponent must prepare and submit for review a Final Environmental Impact Report (FEIR) in response to the limited Scope provided below.

The Red Line/Blue Line Connector project has the potential to provide environmental and economic benefits associated with increased transit ridership and mobility. However, the project also presents several challenges in the context to MEPA review related to project timing and impact assessment. Design of the project is included in the latest revision of the State Implementation Plan (SIP) and codified in the Massachusetts Department of Environmental Protection's (MassDEP) Transit System Improvement Regulations (310 CMR 7.36). The SIP contains procedures and programs to monitor, control, maintain, and enforce compliance with all national air quality standards per the Clean Air Act (CAA). The design of the Red Line/Blue Line Connector is a specific project outlined in the SIP; a project to be undertaken by the Massachusetts Department of Transportation (MassDOT). As identified in the SIP, final design of the project

must be completed by December 31, 2011 in order to comply with the MassDEP Air Pollution Control Regulations.

The project's inclusion in the latest SIP revision was intended to allow for project design so that the project could be implemented readily should the Commonwealth choose to advance the project. However, at present this project is not listed on the latest Regional Transportation Plan (RTP) for the Commonwealth that identifies transit projects slated for funding and completion in the next 20 years, and no funding sources have currently been identified. Given these circumstances it appears possible that this project will be not constructed within the timeframe typically associated with MEPA review. Under the MEPA regulations, if a project does not commence construction within three years of the availability of the FEIR a Notice of Project Change (NPC) is required, and a new Environmental Notification Form is required after five years. These provisions of the regulations are intended to ensure meaningful review of environmental impacts by requiring review of project-related impacts in light of currently-existing conditions. Therefore, if the Red Line/Blue Line Connector project does not commence construction within these regulatory time periods, supplemental MEPA review may ultimately be required. In order to balance the goals embodied in the SIP of advancing the project to design completion with the constraints inherent in providing detailed information on a project that may not be constructed in the proximate future, I have limited the remaining items to be evaluated to key design features and their related environmental impacts. Those items pertaining to construction period impacts, operations impacts, station design, and other construction-level details, will need to be reconsidered and reviewed by MassDOT upon determination of a construction commencement date when a more meaningful review can occur. However, these topics should be addressed in the Response to Comments to the extent possible.

Commenters on the DEIR have expressed widespread support for the project and its potential to improve air quality, increase public transit ridership, and improve mobility and regional access. The project will also improve access to area medical facilities and public open space along the Charles River. Comments received reflect the challenges associated with environmental review of a project that has achieved a 10 percent design stage and has an undetermined commencement date or funding source. This uncertainty necessarily places some constraints on the project's ability to fully delineate all environmental impacts at this time, as some specific mitigation measures may need to be deferred until design is completed or a construction period context (i.e. timing of construction commencement) is identified. Therefore, I acknowledge MassDOT's need to rely on conceptual or draft plans and mitigation measures during MEPA review as the best available means to disclose and consider environmental impacts in the project design process.

Project Description

As described in the DEIR, the project consists of the extension of the Massachusetts Bay Transportation Authority's (MBTA) Blue Line under Cambridge Street to Charles/MGH Station, eliminating the existing Bowdoin Station within the City of Boston. The project uses realigned tracks from 250 feet west of the Government Center Station to Bowdoin Station and new tracks from Bowdoin Station to Charles/MGH Station. The project consists of several major components: 1) the realignment of the westbound Blue Line track through Bowdoin Station; 2) a

new rapid transit tunnel extending the Blue Line under Cambridge Street, from Joy Street to Charles Circle; 3) a new underground Blue Line Station connected to the existing Charles/MGH Station headhouse; and 4) construction of the North and South Tail Tracks beyond Charles/MGH Station for vehicle storage. The entire project, with the exception of parts of Bowdoin Station and tail tracks, lies within the right-of-way of Cambridge Street. The majority of the project length will have two separate tunnels; at the station platforms and crossover, one broad tunnel will be constructed.

The DEIR included a preliminary cost estimate of the preferred project alternative of \$621 million (in 2009 dollars; at the mid-point of construction, the escalated cost would be \$748 million) based on a ten percent design level and a 40 percent contingency allowance. The project construction period is estimated at six years. MassDOT has indicated in the DEIR that it has not identified funding for the construction of the project and therefore there is no selected date for commencement of construction. Should additional resources for MBTA expansion projects become available, MassDOT has noted that this project will be one of the projects considered for implementation.

As described in the DEIR, the project is an initiative of MassDOT in coordination with the MBTA to implement enhancements to transit services that will improve mobility and regional access for the residents of East Boston and North Shore communities and the residents of Cambridge and the northwestern suburbs. This project is expected to boost transit ridership, reduce automobile travel through downtown, improve air quality, and reduce congestion in the existing downtown transfer stations.

MassDOT established a Working Group subsequent to the issuance of the Certificate on the Expanded Environmental Notification Form (EENF). This Working Group includes members of neighborhood, civic, and business groups, and the community at-large. According to the DEIR, the Working Group met on five occasions in 2009 and provided critical guidance to both MassDOT and the project consultant team to advance project study and design. I anticipate that this Working Group will continue to convene and provide project guidance to MassDOT throughout the remainder of the MEPA process and into the project's final design and beyond to the construction period. The DEIR indicated that at least six additional meetings are planned as the project progresses.

Procedural History

The EENF was submitted for MEPA review and noticed in the Environmental Monitor on September 25, 2007. On November 15, 2007, I issued a Certificate on the EENF outlining the scope for the DEIR.

As part of the EENF, MassDOT requested in accordance with 301 CMR 11.05(7) that it fulfill its EIR obligations under MEPA with a Single EIR, rather than the usual process of a Draft and Final EIR. I declined to grant this request for reasons discussed in the Certificate on the EENF. The DEIR received an extended comment period of 45 days, commencing on April 7, 2010 and concluding on May 21, 2010.

Within the DEIR, MassDOT requested that the DEIR be considered as the FEIR in accordance with 301 CMR 11.08(8)(b)(2). I have determined that while the DEIR is generally responsive to the requirements of 301 CMR 11.07 and the Scope, there remain several unresolved issues requiring additional evaluation that preclude me from exercising my rights to declare that the DEIR will be considered an FEIR.

Project Permitting and Jurisdiction

The project is undergoing review pursuant to Section 11.03(6)(a)(5) because the project is being undertaken by a State Agency and will result in the construction of a new rail or rapid transit line along a new, unused or abandoned right-of-way for transportation of passengers or freight. The project will require an access permit from the Department of Conservation and Recreation (DCR) for work affecting Charles Circle. The project may require an Order of Conditions from the Boston Conservation Commission. The project may require an 8(m) permit from the Massachusetts Water Resources Authority (MWRA). The project will also require a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and a Remediation General Permit from the United States Environmental Protection Agency (U.S. EPA).

Because the proponent is a State Agency and will use State funding, MEPA jurisdiction for this project is broad and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in the MEPA regulations.

Review of the DEIR

General

The DEIR provided a response to the Secretary's Certificate on the EENF and included additional information as necessary to respond to the Scope and respond to comments received on the EENF. The project as presented in the DEIR is generally consistent with that proposed in the EENF, however several design modifications were proposed that seek to reduce overall environmental impacts. These design modifications include the reduction in project track width from four tracks to two tracks and selection of mined tunnel technology as the preferred construction methodology for the majority of the project length. The DEIR document referenced numerous prior studies associated with various aspects of the project; these studies were included as appendices to the *Alternatives Analysis Technical Report*, prepared by STV, dated 2009.

Project Description and Permitting

The DEIR described the proposed project including anticipated project phasing and estimated project costs at a level commensurate with ten percent design. As noted previously, MassDOT does not have a designated funding source for this project at this time. I received several comments requesting more detailed cost estimates for inclusion in the FEIR. MEPA review is an environmental disclosure process, not a vehicle for detailed evaluation of project costs. Typically, MEPA uses requests for information on project cost as a way to better inform the

balancing of environmental impacts between project alternatives. In this case, completion of preliminary cost estimates revealed that selection of the use of tunnel boring machinery for the majority of the construction process would result in fewer environmental and construction period impacts than a cut-and-cover methodology. The level of detail regarding project costs (with the necessary adjustment for contingencies and inflation due to an uncertain construction commencement date) included in the DEIR is sufficient to assist in the determination that the selected project alternative has sought to avoid, minimize and mitigate Damage to the Environment.

The DEIR provided a history of rapid transit use in the project corridor and the relationship of this project to other MBTA improvement projects, including the Government Center Station and Blue Line railway car upgrades. The DEIR also contained a description of other related regional transportation improvement projects and consistency of the Red Line/Blue Line project with the parallel project goals.

The DEIR included existing conditions plans and supporting narrative descriptions detailing adjacent land uses, existing MBTA stations and tracks/tunnels, historic structures, major utilities, and potentially contaminated properties. Proposed conditions plans depict above ground and below ground project layout, station locations, track alignment, location of stormwater management systems, ventilation buildings and emergency exits, limits of work for both cut and cover and tunnel boring construction techniques, potential staging areas, and other project components. Several comments noted potential advantages to providing additional access to Charles/MGH Station via a full access headhouse at the Grove Street intersection or a pedestrian tunnel leading from Charles/MGH Station directly to land uses located on the north side of Cambridge Street at Charles Circle. While I am not requesting that the FEIR evaluate these project components, I encourage MassDOT to consider these potential future connections when determining final project design and strive not to preclude their implementation should they become feasible at a later date.

The DEIR also described station locations, anticipated access points and circulation, and conceptual station layout. The North Tail Track will be located approximately 400 feet from the proposed west end of the Charles/MGH Blue Line platform to beneath the Massachusetts Eye and Ear Infirmary (MEEI) parking lot. The South Tail Track will be located approximately 300 feet from the west end of the Charles/MGH Blue Line platform to beneath the eastern sidewalk of Charles Street on the south side of Charles Circle. A full crossover will be provided east of Charles/MGH Station Blue Line platform and a left-hand crossover will be provided east of Government Center Station. I encourage MassDOT, as project design advances, to consider comments received regarding the location and layout of the two proposed tail tracks. Notably, but not limited to, ensuring that design does not preclude future transit expansion of the Blue Line and confirming that location of tail tracks will not conflict with reasonably foreseeable work on the Longfellow Bridge or within the Charles River Reservation.

The DEIR described proposed electrical systems including substation locations and signal and communication systems along the project corridor. The DEIR concluded that no permanent land takings will be required to achieve the preferred alternative; however, temporary easements will be required during the construction period, most notably a temporary occupancy permit for

work within the Charles River Reservation from DCR. Finally, the DEIR included a list of anticipated permits and approvals from local, State and federal regulatory authorities.

Alternatives Analysis

Over the years, numerous planning studies have been undertaken by MassDOT to evaluate potential system modifications to better service the Commonwealth's transit riders and improve regional air quality. These studies, along with information shared in the EENF, assisted in narrowing the focus of the alternatives analysis for the scope on the DEIR. The DEIR presented an alternatives analysis that evaluated potential environmental impacts associated with three project alternatives:

1. the No-Build Alternative;
2. Alternative 1 – Red Line/Blue Line Connector with Eliminated Bowdoin Station (the Preferred Alternative); and
3. Alternative 2 – Red Line/Blue Line Connector with Relocated Bowdoin Station.

The DEIR provided a summary of past alternatives analyses and a description of how alternatives were initially evaluated and screened based upon general feasibility, constructability, relative cost, transportation benefit, and environmental impact. The DEIR also discussed the impact of a decommissioned Bowdoin Station on system operations, subway infrastructure (both above grade and below grade), and emergency egress. The preferred alternative (Alternative 1) will improve transit connectivity and result in improved transit times along the Blue Line between Charles/MGH Station and Government Center Station as compared to Alternative 2, but decreased accessibility to transit for passengers. Alternative 2 will improve access to transit as compared to Alternative 1, but will result in decreased transit times along the Blue Line between Charles/MGH Station and Government Center Station. Both alternatives will not adversely impact operations on the Red Line or Blue Line nor preclude operation of local shuttle services. In note that under the preferred alternative, the transit populations served by the existing Bowdoin Station will likely be displaced to either Charles/MGH Station or Government Center Station. I encourage MassDOT, as they advance plans for the upgrades to Government Center Station, to consider the potential to serve riders currently using Bowdoin Station with the construction of a full access headhouse to Government Center Station within the plaza associated with the John F. Kennedy Federal Building.

The DEIR also discussed further paring of alternatives based upon construction methodologies (cut-and-cover versus mined tunnel), with evaluation criteria consisting of transit/service operations, construction impacts, community impacts, environment, relative cost, and coordination. In an effort to avoid, minimize and mitigate Damage to the Environment, the preferred alternative will use a tunnel boring machine for the majority of tunnel construction, with cut-and-cover or sequential excavation mining methods used for the following areas:

1. A 550 foot segment east of Bowdoin Station to allow for track realignment and removal of the tunnel boring machine (cut-and-cover);

2. A 100 foot segment east of Charles/MGH Station to allow for construction of a ventilation room in the area of the track crossover (cut-and-cover); and
3. Construction of the short tail tracks west of Charles/MGH Station (sequential excavation mining) and excavation of a 150 foot segment of North Trail Track to allow for access of the tunnel boring machine (cut-and-cover).

Alternative configurations in track width and train storage locations were considered and ultimately led to the proposed project design, with two tracks and storage tracks provided at the terminus of the Blue Line. The Certificate on the EENF requested that MassDOT (then the Executive Office of Transportation (EOT)) provide a response to the suggested use of a pedestrian tunnel in lieu of a rapid transit connection between Bowdoin Station and Charles/MGH Station. The Certificate did not request the preparation of an alternatives analysis for the pedestrian tunnel at a level commensurate with that requested for the No Build, Build with Elimination of Bowdoin Station and Build with Relocated Bowdoin Station alternatives. Accordingly, MassDOT's response stated that use of a pedestrian tunnel, or people-mover technology was not a viable alternative that met the project's purpose as established by the project Proponent (MEPA, as an environmental disclosure process, does not establish a project's purpose, the Proponent does). Furthermore, MassDOT concluded that a pedestrian tunnel does not meet the regulatory requirement of extending rapid transit service to connect the Red Line and Blue Line as it does not result in an improvement in transit by reducing the existing "three-seat trip" for Blue Line riders who travel to destinations on the Red Line.

The DEIR described impacts associated with each alternative on station location and system operations, project cost, tunnel and track alignment, conceptual station design, stormwater and groundwater management systems and ridership. Information on project-related impacts associated with noise, vibration, air quality, historical resources, environmental justice populations and construction period activities were also presented in a manner that allowed for comparison between project alternatives.

Land

The DEIR clarified jurisdictional areas within the project corridor with regard to right-of-way ownership, identified those areas classified as park lands, and areas designated as Commonwealth Tidelands protected under M.G.L. c.91. Both Cardinal Cushing Park (located near Bowdoin Station) and the Charles River Reservation are protected parks in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth (Article 97). The preferred alternative will not permanently impact park resources within the project area. Modifications to Charles/MGH Station will require the relocation outward of an exterior wall which would limit impact to the existing exterior walkway around the station, which occupies Charles Circle. Underground components of the project will not change the recreational use of the Charles River Reservation or Cardinal Cushing Park. Temporary impacts to park resources during the construction period will include pedestrian detours or access restrictions. MassDOT will obtain a temporary occupancy permit from DCR during the project construction period for work on DCR property and roadways.

The portion of the project area along Cambridge Street east from the river to North Anderson Street, and adjacent land uses and public walkways, are presumed by MassDOT to be Landlocked Tidelands. Temporary (construction period) impacts to Landlocked Tidelands include excavating fill and placing structures along Cambridge Street during the tunnel boring phase of the project. Impacts will also include temporary traffic detouring and limited public access along adjacent walkways during construction. There will be no permanent impacts to Landlocked Tidelands. Contrary to what the proponent concluded in the DEIR, because the project submitted its EENF prior to November 15, 2007, I will not be required to conduct a Public Benefit Determination (301 CMR 13.00) for this project.

The preferred alternative will result in the permanent removal of approximately 175,000 cubic yards of soil. According to the DEIR, spoils from the tunnel boring machine will be temporarily stockpiled on-site before transport, while material from cut-and-cover excavations will be directly loaded into dump trucks and hauled off-site for disposal. The DEIR included as part of the *Alternatives Analysis Technical Report* a Geotechnical Report that analyzed on-site soils and assisted in the selection of construction methodologies.

Transit Ridership

The DEIR and related *Ridership Technical Memorandum* provided updated transit ridership data that incorporated anticipated service area growth and changes in trip distribution and boardings for both Alternative 1 and Alternative 2. The DEIR predicted an increase in ridership on the Blue Line of 4,400 for Alternative 1, and 4,200 for Alternative 2. A comparison of boardings for both alternatives estimated shifts in boardings along the Red Line and Blue Line at Charles/MGH, Park Street, Downtown Crossing, Bowdoin, Government Center, and State Stations. The redistribution of boardings at major downtown transit stations will provide congestion relief in many of the busiest stations within the transit system.

As part of the *Alternatives Analysis Technical Report*, an analysis of ridership and rapid transit operations was prepared. This memorandum discussed the regional travel model set of the Central Transportation Planning Staff (CTPS), which includes a four-step travel-modeling process of trip generation, trip distribution, mode choice, and trip assignment. A model set was developed for the Red Line/Blue Line Connector and presented as the basis for transit ridership models and related project-benefits as presented in the DEIR. This model included assumptions related to subway operating parameters (i.e., number and type of vehicles, vehicle capacity, travel time, and peak and off-peak headways). Vehicle Miles Traveled (VMT) reductions were determined for the design year (2030) based on a comparison of the projected vehicle trips under the No-Build Alternative (new and diverted trips) projected under both build alternatives. This VMT modeling reflected anticipated changes to transportation infrastructure, including projects in the Transportation Improvement Plan (TIP) and long-range regional plans.

Access to Government Center and Charles/MGH Stations are not anticipated to be affected by construction, although pedestrian walkways may be temporarily detoured to accommodate certain construction activities. Bowdoin Station will be closed during construction and Blue Line service will terminate at Government Center Station. Other transportation modes (i.e. public

buses, private hospital shuttle buses) will be temporarily impacted during construction, except for local access to MGH, during night-time and weekend construction hours.

Traffic and Transportation

The project will result in a net reduction of vehicle trips in comparison with a No Build Alternative. Regionally, either build alternative is estimated to reduce weekday VMT by approximately 5,250 (in 2030). Additionally, the primary mode of access to the new Blue Line Station at Charles/MGH would be by walking or by transfer from the Red Line inside the expanded Charles/MGH Station. No dedicated parking is anticipated in conjunction with this project due to its urban location. The project will not result in an increase in headways for either build alternative. Travel times to the end of the line, at Charles/MGH Station, will increase by about 30 seconds for Alternative 1 and two minutes for Alternative 2.

The DEIR included a detailed traffic study that presented existing and proposed conditions under the build and no-build alternatives for traffic volumes, operations, safety, emergency vehicle and truck access, pedestrians and bicycles, and parking. This analysis, subsequent to consultation with DCR, MassDOT, and the City of Boston Transportation Department (BTD), evaluated the following intersections within the study area:

- Charles Circle – Longfellow Bridge outbound/Storrow Drive westbound off-ramp;
- Charles Circle – Charles Street/Storrow Drive eastbound off-ramp/Longfellow Bridge inbound;
- Charles Circle – Charles Street northbound/Storrow Drive westbound on-ramp;
- North Grove Street/Grove Street;
- North Anderson Street/Anderson Street;
- Blossom Street/Garden Street;
- Joy Street;
- Staniford Street/Temple Street;
- New Chardon Street/Bowdoin Street; and
- New Sudbury Street/Somerset Street.

According to the traffic study presented in the DEIR, traffic operations along the majority of intersections along Cambridge Street would see minor improvements to overall average intersection delay under either Alternative 1 or 2, compared to the No-Build Alternative. No intersections would result in a loss of Level of Service. The DEIR indicates that there will be no long-term impacts to emergency access or truck routes in the project area. Pedestrian activity will be modified slightly in the vicinity of Bowdon Station (based upon the retention or elimination of the station) under both project alternatives, as compared to the No-Build scenario. However, pedestrian levels of service will remain unchanged in both Alternatives. Furthermore, neither build alternative will physically alter designated bicycle facilities or public parking supply. Construction period traffic and parking impacts are detailed later in this Certificate.

Air Quality

A key attribute of the Red Line/Blue Line Connector is its potential to reduce local air quality impacts by maximizing public transit service and replacing some vehicle trips with rapid transit. Prior to preparation of the DEIR, MassDOT consulted with both MassDEP and the U.S. EPA regarding air quality modeling protocols. The *Air Quality Technical Memorandum* prepared as part of the *Alternatives Analysis Technical Report* concluded that there were no major differences identified in the local (microscale) analysis of carbon monoxide (CO) emissions in 2030 between the two build alternatives, and both showed improvements when compared to the No-Build Alternative. Emission levels for each alternative are estimated to be below the National Ambient Air Quality Standards (NAAQS) for the 1-hour and 8-hour reporting periods. A regional (mesoscale) analysis estimated the area wide emissions of volatile organic compounds (VOCs), oxides of nitrogen (NO_x), carbon dioxide (CO₂), CO, and particulate matter ((PM) both PM₁₀ and PM_{2.5}) in 2030. The DEIR concluded that all project alternatives would result in reductions of these pollutants as compared to 2009 levels, and all parameters would be below the current applicable NAAQS. The project is not expected to generate any substantial amount of air toxics in the study area because the train engines are electric and will not result in the combustion of fuels. The DEIR included modeling data and assumptions to support the conclusions of the *Air Quality Technical Memorandum*.

The DEIR states that the project, as proposed, is consistent with the SIP and MassDEP's Transit Regulations because either build alternative will result in decreased emissions of regulated air pollutants as compared to the No-Build Alternative and MassDOT is advancing project design to meet the SIP requirement to have the project's final design completed by December 31, 2011. The project will not require State or Federal Agency air quality permits.

I note comments received from the Conservation Law Foundation (CLF) indicating its belief that MassDOT has not demonstrated consistency with the SIP due to perceived errors in the air quality modeling methodology. After consulting with MassDEP and MassDOT, I respectfully disagree with this assertion. Transportation modeling is inherently fluid and dynamic; data inputs and modeling refinements are constantly integrated into updated modeling runs with an end goal of providing the most accurate and up to date predictions of actual transportation impacts possible. In acknowledgement of the anticipated evolution of modeling techniques and data inputs, the SIP provides a provision (310 CMR 7.36(9)) whereby upon substantial completion of a project, MassDOT shall complete an analysis of the total air quality benefits of such projects and such analysis shall be performed in accordance with U.S. EPA requirements in effect at the time of the analysis. Thus, the predictive modeling provided at this stage of project development is back-stopped by the use of actual data upon substantial completion of the project. This provides further support for the understanding that air quality data evolves over time through the use of updated modeling assumptions. However, I acknowledge that the air quality modeling methodology can be difficult for the average project reviewer to understand without the benefit of direct access to modeling experts. Therefore, as noted later in this Certificate, I have required MassDOT to provide a narrative clarifying the relationships of air quality modeling data to MassDEP and EPA requirements for SIP consistency as part of the FEIR.

Noise/Vibration

The DEIR presented an analysis of existing and proposed noise and vibration conditions along the project corridor for both build alternatives, prepared based upon methodology defined in the FTA guidance manual *Transit Noise and Vibration Impact Assessment* (Report FTA-VA-90-1003-06, May 2006). The DEIR included a description of background information on the subject matter, a description of FTA sensitive land-use categories, identified sensitive locations along the corridor, and contained measurement results of the existing noise conditions for both noise and vibration impacts.

Generally, the use of an underground subway tunnel effectively mitigates airborne noise generated by trains. Airborne noise sources from transit operations are limited to a traction power substation near Charles/MGH Station and fans in ventilation shafts in the median of Cambridge Street at North Anderson Street and near the eliminated Bowdoin Station. The DEIR concluded that there will be no potential airborne noise impact from transit operations and no mitigation or noise monitoring program will be required for operations-related noise impacts.

As part of the noise analysis, the DEIR also considered construction period noise impacts associated with the potential types of construction equipment that may be used. Potential noise impact from construction activities were assessed as FTA Category 2 (residential, hotel, hospital beds) receptors for daytime, evening and nighttime periods and at institutional and commercial receptors for the daytime period. The DEIR concluded that short-term construction period noise impacts in a worst-case scenario without mitigation may impact up to 26 residential properties and 26 commercial and institutional properties. As mitigation, the DEIR has proposed the preparation of a Noise Control Plan in conjunction with the selected contractor's specific equipment, schedule, and methods of construction, specification maximum noise limits for each equipment type, prohibition of certain types of equipment during nighttime hours, and engineering noise control measures.

According to the DEIR, vibration levels may increase during Red Line/Blue Line operations. The DEIR evaluated potential impacts of ground-borne vibration for humans in residential, institutional, and special buildings, vibration-sensitive equipment, and damage to structures. The DEIR concluded that there would be no adverse effect of ground-borne vibration impact from transit operations to hotels, hospital beds, institutional land uses, or sensitive equipment. The DEIR identified potential operational ground-borne vibration impacts to four multi-family residences near the crossover by Charles/MGH Station. Mitigation measures consisting of spring-rail frogs, moveable-point frogs, or flange-bearing frogs will be implemented to eliminate this vibration source. MassDOT has indicated that there will be no operations-related vibration monitoring plan.

The DEIR concluded that vibration levels may increase during the construction period at the MEEI building at 325 Cambridge Street and the multi-family residential building at 315 Cambridge Street. The DEIR notes that there are no regulatory requirements for managing vibration during construction activities. To mitigate potential impacts, the selected contractor will need to use specific construction methodologies and equipment. MassDOT should specifically

work with these property owners when finalizing design and selection construction methodologies to ensure that vibration impacts can effectively be mitigated.

Stormwater

The DEIR described existing surface water (Charles River) and stormwater management resources within the project corridor. The DEIR illustrated the location of existing drainage areas and treatment control structures. The stormwater management system is controlled primarily by the Boston Water and Sewer Commission (BWSC); however, some storm drains and outfalls are privately owned or are owned by agencies such as MassDOT or DCR. The Cambridge Street corridor contains a piped system that carries both sewage and stormwater flows to the MWRA Deer Island Wastewater Treatment plant. According to the DEIR, the Cambridge Street corridor is comprised of one drainage area that discharges to one Combined Sewer Overflow (CSO) outfall along the Charles River (MWRA022).

The existing stormwater management system will be temporarily altered and relocated during construction to accommodate excavation activities. The DEIR states that the drainage system will be reconstructed to its original alignment in accordance with BWSC requirements upon completion of each phase of construction. Altered CSO infrastructure will be separated into stormwater and sanitary sewer infrastructure per the BWSC Sanitary Sewer regulations. The DEIR contained a stormwater management plan, prepared in compliance with the MassDEP Stormwater Management Standards and Regulations (2008) and NPDES CGP requirements. As a redevelopment project, the project will meet Standards 1,2, and 3, as well as the pretreatment and Best Management Practices (BMPs) requirements of Standard 4 of the MassDEP Stormwater Management Standards and Regulations. The project will seek coverage under the existing BWSC NPDES permit for CSO discharges to the Charles River. The DEIR also included a draft Stormwater Pollution Prevention Plan (SWPPP) prepared in accordance with the NPDES CGP for use during the construction period, as well as a draft post-construction erosion and sedimentation control plan. The MassDEP comment letter has identified construction-related concerns pertaining to temporary relocation of portions of the drainage system and detention of stormwater during construction. MassDOT should consider these concerns in final project design.

Groundwater

The DEIR presented information on project area soils and groundwater conditions, as well as associated regulatory permitting requirements. The DEIR indicated that according to the Boston Groundwater Trust (BGT) groundwater in the project vicinity (Shawmut Peninsula) is altered from natural conditions (i.e. drawdown) due to impacts from the local sewer system. The permanent tunnels, stations, and auxiliary underground structures required for the project will be designed to be as waterproof as practicable to avoid issues associated with permanently lowering the groundwater table. Preliminary estimates presented in the DEIR conclude that leakage into the permanent structures will be less than aquifer recharge. Portions of the project area are located within in an expected zone of settlement. MassDOT will develop a monitoring program to identify and remedy problem situations related to structural integrity. MassDOT will also implement a groundwater monitoring program that will continue after construction to ensure that adverse long-term impacts to the water table do not occur. The DEIR included a description of

test parameters associated with a groundwater monitoring plan that would be used during the pre-construction, active construction, and post-construction periods. Dewatering is anticipated during the construction period and the project will likely require an MWRA Temporary Construction Site Dewatering Discharge Permit.

Open Space and Historic Resources

The DEIR discussed previously known and documented historic and archaeological resources, as well as newly identified resources that are listed, determined eligible for listing, or recommended eligible for listing in the Massachusetts State Register (State Register) and the National Register of Historic Places (National Register). The DEIR included a summary of historic properties within the project's Area of Potential Effect (APE). The majority of the project area has no to low archaeological sensitivity, however due to the location of the historic shoreline, the project area extending west from Anderson Street and including Charles Circle is considered a high archaeological sensitivity area. Detailed descriptions of historic resources within the APE were evaluated as part of the Historic Resources Reconnaissance Survey appended to *Alternatives Analysis Technical Report*.

Studies performed in conjunction with the preparation of the DEIR have concluded that the project will not directly impact any historic resources, as there would be no operational noise, vibration, or land acquisition impacts that would deem the project non-compliant with regulatory requirements. The DEIR presented mitigation measures to offset potential impacts to archaeological resources that may occur during the construction period. MassDOT has identified the need for additional archaeological investigations in high sensitivity areas to locate, identify, evaluate, and record significant cultural deposits.

MassDOT will develop a monitoring program to describe archaeological resource management requirements if resources are encountered during construction activities. The MHC letter on the DEIR has requested that historic structures in the APE be monitored during construction for any potential adverse effects. The DEIR indicated that MassDOT has initiated consultation with MHC to develop the monitoring plan. This monitoring program will be developed in consultation with the Massachusetts Historical Commission (MHC) to ensure compliance with regulatory requirements including, but not limited to, the National Historic Preservation Act of 1966. Finally, MHC has recommended that consideration be given to historic resources during the advancement of station design and potential impacts to the Beacon Hill Historic District associated with the above ground structures proposed as part of the project. I encourage MassDOT to work with MHC during the ongoing consultation process to address these concerns.

Hazardous Waste/Contaminated Soils

The DEIR included a description of potential hazardous materials (including special wastes) and solid wastes present or potentially present within and surrounding the project area. The DEIR included an updated list of hazardous waste sites consistent with MassDEP comments and a summary of contaminated sites immediately adjacent to the project corridor characterizing the nature of contamination and clean-up status. MassDOT has performed a Limited

Environmental Site Assessment for the project which identified over 400 hazardous material disposal sites within, adjacent to, or in the vicinity of the project area and recorded the Massachusetts Contingency Plan (MCP) database. The DEIR indicated that a subset of 34 MCP-listed sites were determined to have some potential to impact soils or groundwater within the project corridor. Three of these sites were determined to have a high potential for impact and were evaluated in detail as part of the DEIR.

A soil and groundwater management plan, describing testing protocols, on-site management, and eventual treatment or disposal, will be finalized prior to construction. The DEIR included a draft Soil and Groundwater Management Plan, prepared based upon the current level of design. This document discusses soil stockpiling and disposal, groundwater management protocols, potential permitting requirements, and responsible parties. The DEIR also discussed solid waste and hazardous waste management issues associated with the construction and demolition of Bowdoin Station.

MassDEP has indicated that pre-characterization of soils within the excavation alignment will be necessary. Additionally, dust/air monitoring will need to be conducted to establish action levels for implementing engineering controls and/or stop work orders. Based upon determined reportable concentration (RC) levels, soils will need to be disposed of in accordance with applicable MassDEP regulations. Groundwater proposed for recharge back into the subsurface will also be required to meet applicable groundwater RC standards or discharged upgradient of the excavation within the capture zone. I expect MassDOT to establish decontamination specifications upon completion of final project design. These specifications should be prepared consistent with applicable MassDEP regulations and guidelines.

Water/Wastewater

Wastewater flows generated during the construction will be limited to stormwater and collected groundwater (from seepage) that will need to be treated and discharged in accordance with MassDEP and BWSC requirements. Staff restrooms will be provided at the Charles/MGH Station, with nominal wastewater flows and water supply requirements anticipated.

Construction Period Impacts

As indicated in the DEIR, the majority of project-related impacts will be temporary in nature and incurred during the construction period. Both build alternatives will have the same temporary construction impacts primarily associated with the open cut-and-cover excavations between Bowdoin Station and Government Center Station, and near Charles/MGH Station. A preliminary general Construction Phasing Plan was presented, consisting of six major phases and a construction duration of six years, three months. No permanent construction easements will be necessary to facilitate construction or operation of the project; however, temporary construction easements will be required from DCR for work within the Charles River Reservation, from MEEI for work in the parking lot under the elevated Red Line, and from the Boston Redevelopment Authority for work in the plaza in front of the John F. Kennedy Federal Building. I note comments received from MWRA indicating that an 8(m) permit may be required for construction-related work near MWRA infrastructure or within MWRA easements.

The project will comply with MassDEP's Solid Waste and Air Quality Control regulations during construction. MassDOT has committed to conducting construction activities in accordance with appropriate City of Boston ordinances for managing nuisance conditions including dust, noise, odor, and rodent control. To accommodate a project staging area, access to the MEEI parking lot north of Charles/MGH Station, leased from DCR to MEEI, will be eliminated during construction. A temporary parking structure will be placed on a portion of the site to mitigate the loss of full access to the parking lot by MEEI.

MassDOT has presented a conceptual Traffic Management Plan that maintains four lanes of traffic along Cambridge Street, with the exception of weekends and overnight during some periods. This Traffic Management Plan seeks to direct through traffic around residential areas within the West End and Beacon Hill. Impacts to pedestrian access to businesses and public transportation will be minimized through use of temporary walkways and detours. The DEIR identified the location and scale of construction period impacts to parking and loading zones within the project corridor. Given the proximity of the project to hospitals and a Boston Fire Department Station, MassDOT has committed to maintain emergency access at all times throughout the area. However, temporary disruptions to existing emergency vehicle, Partners Shuttle, and truck routes will occur during the closure and detour of Cambridge and New Sudbury Streets on nights and weekends over the course of the project. As design advances, MassDOT must coordinate closures with emergency response officials to ensure unimpeded access as needed to these important facilities. The DEIR also presented truck routes for use by vehicles involved in the soil removal process during construction. I note the comments received from DCR on the proposed truck routes and potential conflicts with restrictions on DCR Parkways; MassDOT should consider this guidance prior to finalizing truck routing plans.

To mitigate construction period air quality impacts, MassDOT and the MBTA will contractually require the construction contractors to adhere to all applicable regulations regarding control of construction vehicle emissions. Excessive idling of construction equipment will be implemented as required by MassDEP regulations (310 CMR 7.11). Finally, all construction specifications will require that all diesel construction equipment use on-site be fitted with after-engine emission controls, such as diesel oxidation catalysts (DOCs) or diesel particulate filters (DPFs).

The DEIR indicated that a complete inventory of affected utilities will be conducted as design advances. Buried utilities within each open excavation area will be temporarily relocated during construction. The selection of a construction methodology that predominantly utilizes a tunnel boring machine will reduce project impacts on utility infrastructure. The DEIR notes that the West Side Interceptor and the Boston Marginal Conduit, major components of the Boston Main Drainage System (BMDS) will need to be relocated during construction and replaced in their original location upon completion of excavation work.

As noted previously, the Red Line/Blue Connector project is not scheduled or programmed for construction. The project corridor is proximate to a number of large-scale infrastructure projects that are scheduled to be constructed in the next five to 20 years. In discussing the Red Line/Blue Line Connector's consistency with regional projects and planning, the DEIR notes that

the three other projects within 0.25 miles of the project corridor are all slated to commence and complete construction in advance of construction of the Red Line/Blue Line Connector. The Construction Phasing Plan and Traffic Management Plan presented in the DEIR remain conceptual in nature, reflective of the project's design status (ten percent). MassDOT intends to keep these plans flexible to allow for integration with other nearby transportation projects as necessary. Members of the Working Group should remain engaged in the finalization of these construction period management plans.

SCOPE

As discussed above, I am providing the following Scope for the preparation of a FEIR, limited to the topics outlined below which related to finalizing project design. Although I recognize that this Scope will not address every issue raised by project commenters, and in particular will not resolve outstanding issues related to detailed construction period management and mitigation, I am confident that resolution of the remaining aspects listed below will allow MassDOT to demonstrate that the project has fully complied with the requirements of MEPA and the SIP. Additional topics will be addressed through the state and local permitting process at the time the project ultimately moves forward and through MassDOT's ongoing community involvement processes with the established project Working Group. As noted above, additional details may be reviewed if further MEPA review is required in the future. I also expect that issues raised in comment letters will be comprehensively addressed in the Response to Comments required below.

The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Certificate. The FEIR should identify, describe and assess environmental impacts of any changes in the project that have occurred between the preparation of the DEIR and FEIR.

Air Quality

The FEIR should include a narrative discussion clarifying the air quality modeling assumptions, challenges associated with the inherent evolution of modeling programs and input data, and how the air quality modeling results were conducted in a manner that sufficiently demonstrated consistency with the SIP.

Article 97 Land

The FEIR should confirm the proposed placement of permanent ventilation/access shafts associated with the project on DCR property. If these permanent structures will be placed on DCR property, they will be subject to Article 97 and the FEIR must discuss how the project will meet the Executive Office of Energy and Environmental Affairs (EEA) Article 97 Policy. To further assist in the assessment of potential project impacts to Article 97 lands, the FEIR should provide additional information on the proposed temporary parking structure to be located in the MEEI parking lot as requested in the DCR comment letter on the DEIR. Additionally, DCR has indicated that soil stockpiling at the MEEI parking lot may be restricted by existing road infrastructure that bisects the property. MassDOT should affirm in the FEIR that the parking

parcel is sufficient to accommodate the various project needs. If not, the FEIR should present conceptual locations to meet project staging, parking and stockpiling needs within the project corridor.

Stormwater

The FEIR should respond to MassDEP's comment noting that the MWRA and the *Final Nutrient TMDL Development for the Lower Charles River Basin* TMDL indicate that the CSO outfall, MWRA022, designed to receive flows from the project, is closed. The FEIR should provide revised information on the drainage system and NPDES permit requirements, or the issue should be explained further to resolve the contradiction. Furthermore, the FEIR should address how project stormwater discharges will affect the Prison Point facility and the MWRA's Boston Marginal Conduit. As requested by MassDEP, the FEIR should address how water quality improvement measures may be incorporated into the project design for consistency with the applicable NPDES General Permit.

Mitigation/Section 61 Findings

The FEIR should include a separate chapter on mitigation measures. This chapter on mitigation should include updated draft Section 61 findings for each State Agency action. The draft Section 61 Findings should contain a clear commitment to specific mitigation items and/or the establishment of construction period mitigation plans, a conceptual schedule for implementation, an estimate of the individual costs of the proposed mitigation to the maximum extent that they can be determined at this time, and the identification of the parties responsible for implementing the mitigation.

Comments/Circulation

The FEIR should contain a copy of this Certificate and a copy of each comment letter received. The FEIR should respond fully to each substantive comment received to the extent that it is within MEPA jurisdiction. This directive is not intended to and shall not be construed to enlarge the Scope of the FEIR beyond what has been expressly identified in this Certificate.

In accordance with Section 11.16 of the MEPA Regulations and as modified by this Certificate, the MassDOT should circulate a hard copy of the FEIR to each State and city agency from which MassDOT will seek permits. The MassDOT should also circulate a copy of the FEIR to those submitting individual written comments. To save paper and other resources, MassDOT may circulate the FEIR in CD-ROM format, although MassDOT should make available a reasonable number of hard copies, to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. In addition, a copy of the FEIR should be made available for public review at the Boston, Revere, Chelsea, Winthrop, Cambridge, and Somerville public libraries.

May 28, 2010

Date



Ian A. Bowles

Comments received:

04/14/2010 Dan Fox
05/11/2010 Salvatore LaMattina, Boston City Councilor, District 1
05/19/2010 Partners HealthCare System, Inc. and its affiliate Massachusetts General Hospital
05/20/2010 Carlo Basile, State Representative, 1st Suffolk District
05/20/2010 MassDOT (public hearing transcript)
05/20/2010 Massachusetts Water Resources Authority
05/20/2010 A Better City
05/21/2010 Sierra Club
05/21/2010 Massachusetts Department of Environmental Protection – NERO
05/21/2010 Massachusetts Historical Commission
05/21/2010 Conservation Law Foundation
05/21/2010 Fred Salvucci
05/21/2010 Walk Boston
05/21/2010 Edward O. Nilsson
05/21/2010 Downtown North Association
05/21/2010 Massachusetts Department of Conservation and Recreation
05/25/2010 Mayor Thomas G. Ambrosino, City of Revere
05/25/2010 Metropolitan Area Planning Council

IAB/HSJ/hsj